

Glossary

Adapted from the Columbia River Hatchery Reform Project

Acclimation pond Concrete or earthen pond or a temporary structure used for rearing and imprinting juvenile fish in the water of a particular stream before their release into that stream.

Adipose fin A small fleshy fin with no rays, located between the dorsal and caudal fins.

Anadromous (anadromy) Fish which hatch and rear in fresh water, migrate to the ocean to grow and mature, and return to fresh water to spawn.

Artificial production A fish that is produced in a controlled environment, such as a hatchery. (*contrast natural production*)

BKD Bacterial Kidney Disease. A disease of salmonids caused by the bacterium *Renibacterium salmoninarum*. The bacterium can be passed between juvenile fish where they are concentrated in hatcheries and in transportation systems and can be passed to the next generation by an infected female.

Broodstock Adult fish used by hatcheries to propagate the next generation of fish.

Coded Wire-Tag A magnetically detectable wire etched with a distinctive binary code implanted in the nose of a young fish, which, when retrieved, allows for the identification of the origin of the fish bearing the tag.

Delisting Criteria (recovery criteria) Criteria incorporated into ESA recovery plans describing conditions, in terms of both biological status and threats, that when met, would result in a determination that a species was no longer threatened or endangered and could be proposed for removal from the federal list of threatened and endangered species.

DPS Distinct Population Segment. A group of steelhead trout that is (1) substantially reproductively isolated from other conspecific units and (2) represents an important component of the evolutionary legacy of the species.

EDT Ecosystem Diagnosis and Treatment. A science-based approach to formalizing and analyzing actions to improve the sustainability and production of migratory salmon. The approach integrates the quality and quantity of habitat across the salmon life cycle. It estimates the ability of the environment to support a population in terms of abundance, productivity, and life history diversity.

ESA Endangered Species Act. A 1973 act of congress mandating that endangered and threatened species of fish, wildlife, and plants be protected and restored.

ESA recovery plan A plan to recover a species listed as threatened or endangered under the ESA. Plans must, at a minimum, contain (1) site-specific management actions necessary to achieve the plan's goal; (2) objective, measurable criteria which, when met, would result in a determination that the species should be removed from the list; and (3) estimates of the time required and cost to carry out the actions needed to achieve the plan's goal.

Escapement The portion of a run that is not harvested and escapes to natural or artificial spawning areas.

ESU Evolutionarily Significant Unit. A group of Pacific salmon that is (1) substantially reproductively isolated from other conspecific units and (2) represents an important component of the evolutionary legacy of the species.

Eyed egg A fish egg containing an embryo that has developed to the point where the eyes are visible through the egg membrane.

Fingerlings A young fish in its first or second year of life.

Fitness (Individual) The mean number of adult, or sexually mature offspring, produced by an individual organism. Individual fitness is the multiplicative product of two probabilistic components: (1) viability fitness, which measures the probability that an individual will survive to sexual maturity from zygote formation, and (2) reproductive fitness, the expected number of sexually mature offspring that the individual will produce after attaining sexual maturity. Individual fitness is a function of the individual's genotype (genetic makeup at zygote formation) and the environments to which that organism is exposed throughout its lifetime.

Fitness (Population) The mean fitness of all individuals within a population that interbreed when mature within a common environment.

Fry A stage of development in young salmon or trout. During this stage the fish is usually less than one year old, has absorbed its yolk sac, is rearing in the stream, and is between the alevin and parr stage of development

HOB The number of **hatchery-origin fish used as hatchery broodstock**.

HORs Hatchery-origin recruits. The number of HORs equals the sum of HOS + HOB + hatchery-origin fish intercepted in fisheries.

HOS The number of **hatchery-origin fish spawning naturally**

Homing The ability of a salmon or steelhead to correctly identify and return to their natal stream, following maturation at sea.

Imprinting The physiological and behavioral process by which migratory fish assimilate environmental cues to aid their return to their stream of origin as adults.

Jack A precocious or early maturing salmonid fish; most are males.

Integrated hatchery program A hatchery program with the intent for the natural environment to drive the adaptation and fitness of a composite population of fish that spawns both in a hatchery and in the wild.

Kelt A spent or spawned out steelhead salmon.

Local adaptation The evolutionary product of natural selection for a population that inhabits and reproduces within a specific environment for many generations until a genetic-environmental equilibrium is established where the phenotypic means of the population equal, or approximately equal stochastically, the phenotypic optima that confer maximum fitness for the species in the specified environment.

MPG Major Population Grouping. An aggregate of independent populations within an ESU or DPS that share similar genetic, ecological, and spatial characteristics

Natal stream Stream of origin.

Natural production A fish that is produced by parents spawning in a stream or lakebed, as opposed to a controlled environment such as a hatchery. (*contrast artificial production*)

Natural Recruitment The stage at which a juvenile has survived long enough to become part of (i.e., recruited into) a population or an exploitable segment of a population

NOB The number of **natural-origin fish used as hatchery broodstock**.

NORs Natural-origin recruits. The number of NORs equals the sum of NOB + NOS + natural-origin fish intercepted in fisheries.

NOS The number of **natural-origin fish spawning naturally**.

Outmigration The downstream migration of fish toward the ocean.

Parr The developmental life stage of salmon and trout between alevin and smolt when the young have developed parr marks and are actively feeding in fresh water.

pHOS Proportion of natural spawners composed of HORs. Equals $HOS/(NOS + HOS)$.

PIT-Tag Passive Integrated Transponder tags are used to identify individual salmon for monitoring and research purposes. This miniaturized tag consists of an integrated microchip that is programmed to include specific fish information. The tag is inserted into the body cavity of the fish and decoded at selected monitoring sites.

PNI Proportionate natural influence on a composite hatchery-/natural-origin population. Can also be thought of as the percentage of time the genes of a composite population spend in the natural environment. Equals $pNOB/(pNOB + pHOS)$

pNOB Proportion of hatchery broodstock composed of NORs. Equals $NOB/(HOB + NOB)$.

Recruitment The number of fish that enter the exploitable stock and become susceptible to fishing due to growth and/or migration.

Recruits The total number of fish of a specific stock available at a particular stage of their life history.

Recruits per spawner The number of adult fish returning to spawning area per the number of fish that produced them.

Redd A salmon or steelhead spawning nest in gravel in which eggs are deposited.

SAR Smolt-to-adult return rate.

Segregated hatchery program A hatchery program with the intent for the hatchery population to represent a distinct population that is reproductively isolated from naturally-spawning populations.

Smolt The salmonid or trout developmental life stage between parr and adult, which the juvenile is at least one year old and has adapted to the marine environment.

Stray A natural phenomena of some adult spawners not returning to their natal stream, but entering and spawning in some other stream.

Terminal Fishery The fishery that takes place in the last portion of the migration route of fish returning to fresh water to spawn.

Wild fish Any fish not supplied by a fish hatchery.

References:

HSRG Puget Sound and Coastal review and recommendations-
http://www.hatcheryreform.us/hrp/reports/puget/welcome_show.action

WDFW Hatchery Overview-
<http://wdfw.wa.gov/hatcheries/overview.html>

Hatcheries and the ESA-
<http://wdfw.wa.gov/hatcheries/esa.html>

Puget Sound Salmon Recovery Plan-
<http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound/PS-Recovery-Plan.cfm>

Recovery Implementation Science Team. Report on Hatchery Reform Science-
<http://www.nwfsc.noaa.gov/trt/rist.cfm>